

#### A.3.4 SUN-EARTH CONNECTION THEORY

##### 1. Scope of Program

The Sun-Earth Connection (SECT) program is explicitly tasked with the support of theory and modeling investigations of problems falling within the Sun-Earth Connection (SEC) science theme of sufficient breadth that their successful completion requires the efforts of a synergistically interacting group of investigators. All NASA research proposals are expected to demonstrate relevance to NASA Goals and Research Focus Area's (RFA's) as stated in the latest version of its Strategic Plan (follow links from the Web site <http://spacescience.nasa.gov/>); see also the discussion in Section 1 of the *Summary of Solicitation* of this NRA. In the case of the SECT program, proposals are expected to address one or more of the RFA's under Goal II for SEC theme science objectives, namely, (1) Understand the changing flow of energy and matter throughout the Sun, heliosphere, and planetary environments, and (2) Explore the fundamental physical processes of space plasma systems. These RFA's are:

- Goal II: SEC 1.a: Understand the structure and dynamics of the Sun and solar wind and the origins of magnetic variability
- Goal II: SEC 1.b: Determine the evolution and the heliosphere and its interaction with the galaxy
- Goal II: SEC 1.c: Understand the response of magnetospheres and atmospheres to external and internal drivers
- Goal II: SEC 2.a: Discover how magnetic fields are created and evolve and how charged particles are accelerated, and
- Goal II: SEC 2.b: Understand coupling across multiple scale lengths and its generality in plasma systems.

Proposals that serve only as an umbrella for a variety of separate research tasks, even though they each may be related by a common theme and each of high scientific merit, are not appropriate for the SECT program. Proposals for narrowly focused and/or smaller scope theoretical efforts should be submitted to the individual SEC science discipline program elements described in this appendix. Efforts focused on the science of those particular aspects of the Sun-Earth system that directly affect life and society, that is, RFA's for Science Objective 1 of Goal I for the Sun-Earth Connection science theme in Table 3 in the *Summary of Solicitation* of this NRA are not appropriate for the SECT program, and should instead be submitted to the Living With a Star program.

##### 2. Programmatic Information

Selections for the SECT program are nominally for a three year period of performance with annual funding allotments contingent upon the submission of satisfactory progress reports and available funding. The most recent SECT selections were carried out under the auspices of the ROSS-2001 NRA, for which funding started in Fiscal Year 2002. Therefore, this program is currently fully subscribed; the next selection opportunity for

the SECT is not expected to be advertised until the ROSS-2004 NRA is released in early 2004, and proposals for this program are not solicited through this current ROSS-2003.

The total budget for this program element in FY 2003 was about \$3.7M, which is supporting 10 research investigations.

Questions about this program element may be directed to the Program Officers:

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